Thermometry, France, BNM (Bureau National de Métrologie)

All services are provided by the BNM-INM

Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty					
Quantity	Instrument or artifact	Instrument Type or Method	Minimum value	Maximum value	units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?	Comments
Temperature	Neon triple-point for CSPRT	Comparison with a cell	24.5561	24.5561	K	Adiabatic calorimeter		1.36	mK	2	95%	No	Approved on 18 May 2004
Temperature	Oxygen triple-point for CSPRT	Comparison with a cell	54.3584	54.3584	K	Adiabatic calorimeter		0.36	mK	2	95%	No	Approved on 18 May 2004
Temperature	Argon triple-point for CSPRT	Comparison with a cell	83.8058	83.8058	K	Adiabatic calorimeter		0.31	mK	2	95%	No	Approved on 18 May 2004
Temperature	Argon triple-point for SPRT	Comparison with a cell	83.8058	83.8058	K	Temperature-controlled bath		0.5	mK	2	95%	No	Approved on 18 May 2004
Temperature	Mercury triple-point for SPRT	Comparison with a cell	234.3156	234.3156	K	Temperature-controlled bath		0.23	mK	2	95%	No	Approved on 18 May 2004
Temperature	Gallium for SPRT	Comparison with a cell	29.7646	29.7646	°C	Air flow furnace		0.2	mK	2	95%	No	Approved on 18 May 2004
Temperature	Indium for SPRT	Comparison with a cell	156.5985	156.5985	°C	Air flow furnace		0.7	mK	2	95%	No	Approved on 18 May 2004
Temperature	Tin for SPRT	Comparison with a cell	231.928	231.928	°C	Air flow furnace		0.7	mK	2	95%	No	Approved on 18 May 2004
Temperature	Zinc for SPRT	Comparison with a cell	419.527	419.527	°C	Air flow furnace		1	mK	2	95%	No	Approved on 18 May 2004
Temperature	Aluminium for SPRT	Comparison with a cell	660.323	660.323	°C	Pressure-controlled heat pipe furnace		2.4	mK	2	95%	No	Approved on 18 May 2004
Temperature	Fixed-point blackbody radiator, Ag	Comparison with a fixed-point blackbody radiator	961.78	961.78	°C	Spectral comparison through radiance comparator	0.65 µm to 2.5 µm	0.09	°C	2	95%	No	Approved on 18 May 2004

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Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty					
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Comments**
Temperature	Capsule type SPRTs	By measurement at Water triple-point	273.16	273.16	K	Adiabatic calorimeter		0.39	mK	2	95%	No	Approved on 18 May 2004
Temperature	Capsule type SPRTs	By measurement at Argon fixed point	83.8058	83.8058	K	Adiabatic calorimeter		0.44	mK	2	95%	No	Approved on 18 May 2004
Temperature	Capsule type SPRTs	By measurement at Oxygen fixed point	54.3584	54.3584	K	Adiabatic calorimeter		0.52	mK	2	95%	No	Approved on 18 May 2004
Temperature	Capsule type SPRTs	By measurement at Neon fixed point	24.5561	24.5561	K	Adiabatic calorimeter		1.94	mK	2	95%	No	Approved on 18 May 2004
Temperature	Capsule type SPRTs	By measurement at Hydrogen fixed point	13.8033	13.8033	K	Adiabatic calorimeter		4.2	mK	2	95%	No	Approved on 18 May 2004
Temperature	Long stem SPRTs	By measurement at Mercury fixed point	234.3156	234.3156	K	Temperature-controlled bath		0.61	mK	2	95%	No	Approved on 18 May 2004
Temperature	Long stem SPRTs	By measurement at Argon fixed point	83.8058	83.8058	K	Temperature-controlled bath		0.69	mK	2	95%	No	Approved on 18 May 2004
Temperature	Long stem SPRTs	By measurement at Water triple-point	0.01	0.01	°C	Temperature-controlled bath		0.3	mK	2	95%	No	Approved on 18 May 2004

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Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty					
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Comments**
Temperature	Long stem SPRTs	By measurement at Gallium fixed point	29.7646	29.7646	°C	Air flow furnace		0.26	mK	2	95%	No	Approved on 18 May 2004
Temperature	Long stem SPRTs	By measurement at Indium fixed point	156.5985	156.5985	°C	Air flow furnace		0.7	mK	2	95%	No	Approved on 18 May 2004
Temperature	Long stem SPRTs	By measurement at Tin fixed point	231.928	231.928	°C	Air flow furnace		0.75	mK	2	95%	No	Approved on 18 May 2004
Temperature	Long stem SPRTs	By measurement at Zinc fixed point	419.527	419.527	°C	Air flow furnace		1.1	mK	2	95%	No	Approved on 18 May 2004
Temperature	Long stem SPRTs	By measurement at Aluminium fixed point	660.323	660.323	°C	Pressure-controlled heat pipe		2.6	mK	2	95%	No	Approved on 18 May 2004
Temperature	Long stem SPRTs	By measurement at Silver fixed point	961.78	961.78	°C	Pressure-controlled heat pipe		4	mK	2	95%	No	Approved on 18 May 2004
Temperature	Standard radiation thermometer	Fixed-point blackbody	1084.62	1084.62	°C	Wavelength	0.65 µm	0.45	K	2	95%	No	Approved on 18 May 2004
						Ambient temperature	(23 ± 1) °C						
						Humidity	(50 ± 10)%						

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Calibration or Measurement Services			Measurand Level or Range			Measurement Conditions/Independent variables		Expanded Uncertainty					
Quantity	**Instrument or artifact**	**Instrument Type or Method**	**Minimum value**	**Maximum value**	**units**	**Parameter**	**Specifications**	**Value**	**Units**	**Coverage Factor**	**Level of Confidence**	**Is the expanded uncertainty a relative one?**	**Comments**
Temperature	Radiation thermometer	Blackbodies monochromatic radiance comparator	962	1500	°C	Wavelength	0.6 µm to 8 µm	1	K	2	95%	No	Approved on 18 May 2004
						Ambient temperature	(23 ± 1) °C						
						Humidity	(50 ± 10)%						